

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Daniel W. Cushing et al. Art Unit: 1771
Serial No.: 10/707,612 Examiner: Andrew T. Piziali
Filed: 12/24/2003
For: Translucent, Flame Retardant Composite Materials

Board of Patent Appeals and Interferences
Commissioner for Patents
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REPLY TO EXAMINER'S ANSWER

In the Examiner's Answer mailed April 17, 2008, the Examiner continued his rejection of claims 1,2, 4 and 5 under 35 U.S.C. 103(a) over U.S. Publication No. 2004/0219855 to Tsotsis in view of Gomez 5,319,003.

Tsotsis teaches a multiaxial preform comprised of reinforcing layers of unidirectional fibers with non woven interlayers of spunbonded, spunlaced or mesh fabric of thermoplastic materials disposed between the reinforcing layers of unidirectional fibers, wherein the interlayers are melt bonded to at least one of the reinforcing layers of unidirectional fibers. The melt bonded layers hold the unidirectional fibers in place during the resin infusion i.e., liquid molding operation.

In contrast, in the applicant's invention, there is two layer composite comprising a substantially continuous nonwoven thermoplastic polyphenylsulfone substrate and a plurality of long glass fibers (s-type and e-type glass fibers) laminated within the polyphenylsulfone substrate. The long glass fibers are preferably unidirectional. The multi-alternating layers of Tsotsis are not present, two layers only are present and the

fibers are as specifically identified. Tsotsis uses as fibers carbon fibers, mineral fibers and even undefined glass fibers. The glass fibers of the invention are specifically chosen to provide a composite having very special properties (see claim 1 and disclosure).

The Examiner admits that Tsotsis is silent with regard to specific glass fibers and relies on Gomez to cure this omission.

Gomez is directed to a process for manufacturing composite structure in which continuous filaments selected from “polyaramid fiber, graphite fiber (also known as carbon fiber), gum fiber... glass fiber...boron filaments...ceramic fibers,” etc. are used. E-Type, S-Type, A- Type and C-Type are preferred glass composite compositions. From the shot gun disclosure of Gomez, the Examiner concludes it would have been obvious to one of ordinary skill in the art to make the glass fibers from s-type or e-type glass fibers, motivated by the expectation of successfully practicing the invention of Tsotsis and because it has been held to be within the general skill of a worker in the art to select a known material on the basis of suitability and desired characteristics. The Gomez process comprises contacting a filament with a mixture of a resin and a strain relieving polymer. This is very different than the process and the resultant product of Tsotsis wherein interlayers of spunbonded, spun laced or mesh fabric is introduced between layers of reinforcing fibers to produce constructions having the interlayer materials melt-bonded to the reinforcing fibers.

There is no reason for the artisan to make the selection the Examiner considers to be obvious and to that end the Examiner’s selection would appear to be based on hindsight which is entirely improper.

It is submitted that the combination of Tsotsis and Gomez as applied by the Examiner does not establish that the claimed invention is obvious. Withdrawal of the final rejection and allowance of the claims under appeal are respectfully requested.

Respectfully submitted,
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Dated: June 17, 2008

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